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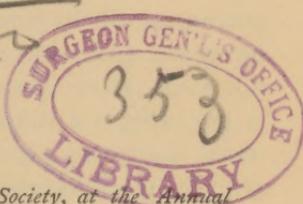
CONSUMPTION IN NEW HAMPSHIRE.

BY

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presented by author



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1888.

THE EXTENT AND DISTRIBUTION OF CON- SUMPTION IN NEW HAMPSHIRE.

I beg the indulgence of this society for a brief time in order to present some facts which have been deduced from the registration of deaths in New Hampshire for the past three years, in relation to pulmonary consumption. But almost before I begin, let me digress for a moment to say that the registration of vital statistics in this state has become sufficiently accurate to be already of great value in considering certain questions affecting the welfare and happiness of our citizens. It only needs the analytical mind and the careful hand to bring forth an array of facts relating to the prevalence of disease among us, that will not only enlighten the public mind, but also prove intellectual food for ourselves. It is forty years since this society made its first strong effort to secure a registration of deaths such as we have reached within the past three years; and it is only a small fraction of the recorded facts of those three years that I shall bring before you at this time. When another forty years shall have been added to the countless decades of the past, if our system of registration is maintained the members of the profession in New Hampshire will be in possession of certain mortuary laws which are to-day unknown, or, at most, largely conjectural, and will have a topographical knowledge of the diseases that invade or are indigenous to the state that will be of incalculable value to physicians, their patients, and the public. The physician who would save himself the trouble of making a return of deaths by evading or ignoring the law, would neglect any other duty tending to make

our practice more scientific and our knowledge of disease more exact; and I am glad to be able to say, as registrar of vital statistics for the state, that so far as I know there is no opposition to such a requirement on the part of the profession. So much for the digression.

Pulmonary consumption is by far the most fatal disease with which mankind is afflicted. In the aggregate, the devastating plagues of the sixteenth century, and the frightful epidemics of cholera which have since occurred, are tame in their ghostly havoc compared with the terrific onslaught of consumption. No race or clime is exempt from its terrible blight: even among the salubrious granite hills and the healthful valleys of New Hampshire it stalks, year in and year out, destroying nearly twice as many lives as any other disease. With an insidious tread, whose faintest footfall is first heard in the occasional bronchial cough, and whose form is first seen in the hectic flush that sometimes counterfeits the bloom of health, it grasps its victims, and, with a hand so gloved as to be almost unselt, crushes out life after life in its silent conquest.

It has no pity for age, sex, education, or wealth; it pursues the mendicant; it is domiciled with the rich. Its terrible reality is so interwoven with civilization that we regard it a concomitant of every community, scarcely inquiring by what decree it becomes a part of our heritage. Public opinion has already too long ascribed the inheritance to the caprices of a much-abused Providence, or to some other mysterious edict, from which there is no escape. It is time that such views be consigned to the great dump-heap where the carts of superstition are—thank God!—unloading the intellectual garbage of generations, and the true relation of cause to effect be studiously and scientifically examined. To do this, we must get at all the facts that have in any way a casual relation to the disease. First, the extent of its prevalence must be known; the age, sex, and condition of its decedents; the season, topography, and other factors that can only be obtained by a careful and systematic registration.

With a view of presenting some of these essential facts for your consideration, I have prepared a few diagrams and tables which I trust will not weary you to follow.

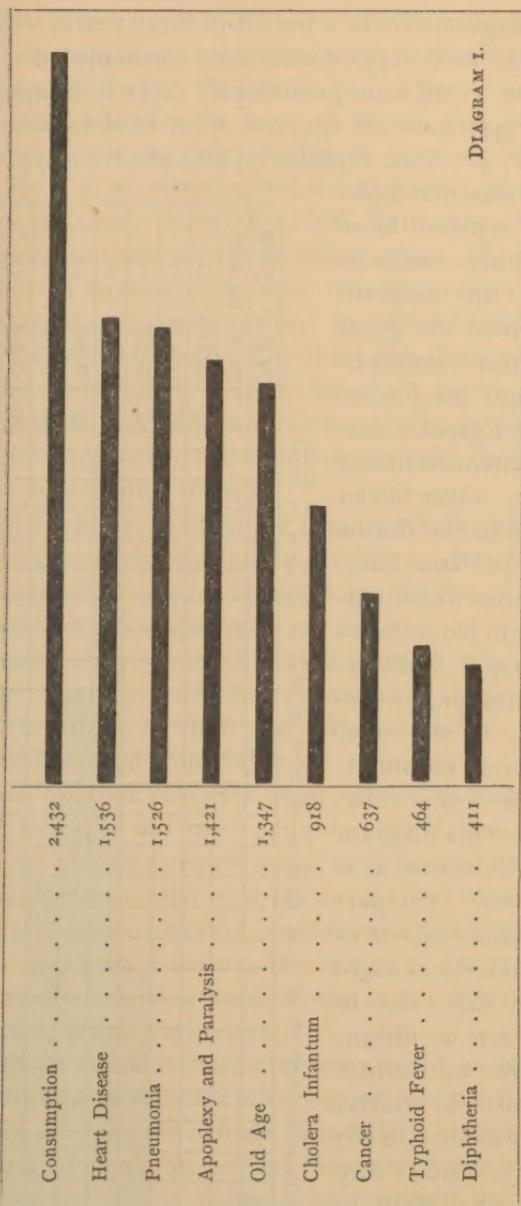
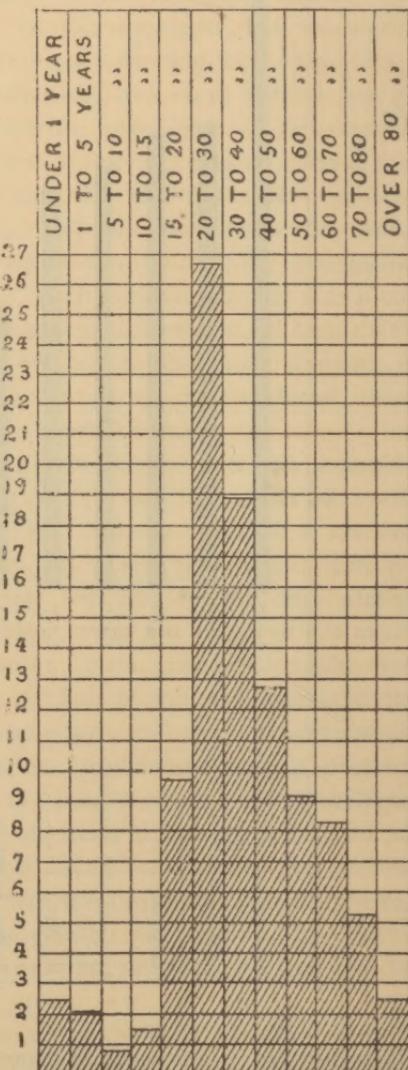


Diagram No. 1 shows the proportional relation of consumption to eight of the most fatal diseases in the state, arranged in their numerical order of fatality. It should be remembered

that these diagrams cover a period of three years,—1885, 1886, 1887. There were 2,432 deaths from consumption, 1,536 from heart disease, 1,526 from pneumonia, 1,421 from apoplexy and paralysis, 1,347 from old age, 918 from cholera infantum, 637 from cancer, 411 from diphtheria, and 464 from typhoid fever.

It will be seen that diphtheria and typhoid fever appear almost insignificant upon the diagram compared with the great mortality from consumption, although the former will cause far greater anxiety and excitement in any community. Over fifteen per cent. of all the deaths that occur in New England are from consumption. Diagram No. 2 shows the percentages of deaths from consumption, by specified ages, to the total mortality from consumption, for the years 1885, 1886, 1887. This diagram represents the disease as it actually exists. The percentage of decedents is as follows: Under one, 2.44; one to five, 2.07; five to ten, 0.78; ten to fifteen, 1.53; fifteen to twenty, 9.74; twenty to thirty, 26.78; thirty to forty, 18.98; forty to fifty, 12.60; fifty to sixty, 9.08; sixty to seventy, 8.33; seventy to eighty, 5.22; over eighty, 2.40.



DIA'M 2

This table, taken by itself without reference to the living of the respective ages given, is exceedingly misleading, inasmuch as, without considering the latter factor, it would leave the impression that between the ages of twenty and forty the liability to the disease is nearly twice as great as at any other period of life. A greater number die, as this diagram and the table show, between those ages, but there is a much larger living population between those same ages. My observation has long led me to doubt that there was any period of life that could be classed as "consumptive," in contradistinction to any other period offering exemption from the disease, after adult life has been reached. I have therefore taken some pains and time to study the subject, and am able to prove by figures that such a supposed "consumptive period" does not exist, except to a very limited degree.

This fact is shown in Diagram No. 3, which represents the percentages from consumption for the three years before mentioned, by specified ages, to the total population of those ages. The percentages are as follows:

Under one, .32; one to five, .06; five to ten, .02; ten to fifteen, .04; fifteen to twenty, .24; twenty to thirty, .34; thirty to forty, .32; forty to fifty, .25; fifty to sixty, .22; sixty to seventy, .28; seventy to eighty, .29; over eighty, .41.

Stated in another way, the ratio of deaths from consumption to the living of the same ages is,—under one year of age, 32 deaths to 10,000; between one and five, 6; between five and ten, 2; between ten and fifteen, 4; between fifteen and twenty, 24; between twenty and thirty, 34; between thirty and forty, 32; between forty and fifty, 25; between fifty and sixty, 22; between sixty and seventy, 28; between seventy and eighty, 29; over eighty, 41.

From these figures and the diagram, it will be seen that the mortality from consumption is very great during the first year of life,—equal to the percentage of mortality between the ages of thirty and forty. The greatest immunity from the disease is between two and fifteen years of age, as will be seen by the large gap in the diagram. From the fifteenth year to over eighty the mortality is large. The highest death-rate from this disease in the active period of life is reached between the

ages of twenty and thirty; from thirty to sixty there is a slight diminution in its percentage of mortality; while from sixty to over eighty it constantly increases.

This computation is based upon the living of those ages according to the census returns, and is, without doubt, approximately correct. The census returns of 1880 gave the living of the state as follows:

Total, 346,991. Under one, 6,144; one to five, 24,432; five to ten, 30,230; ten to fifteen, 30,669; fifteen to twenty, 32,055; ^{1.00} twenty to thirty, 63,252; thirty to forty, 46,532; forty to fifty, 39,344; fifty to sixty, 31,998; sixty to seventy, 23,417; seventy to eighty, 14,227; over eighty, 4,695.

The facts represented by Diagram No. 3 are very important in showing the danger from consumption at all periods of life. This is the true diagram from which to judge the disease, because it shows exactly its ravages by ages among the people of the state. The popular idea of the prevalence of consumption, and an idea to some extent entertained by the medical profession, is that represented by Diagram No. 2, which shows the actual mortality from consumption, without taking into account the living; it is, in fact, a diagram of the dead alone, while Diagram No. 3 is the ratio of the dead to the living.

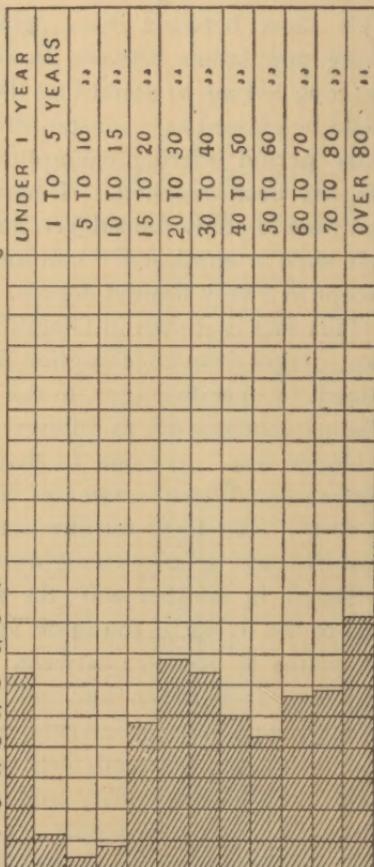


DIAGRAM 3

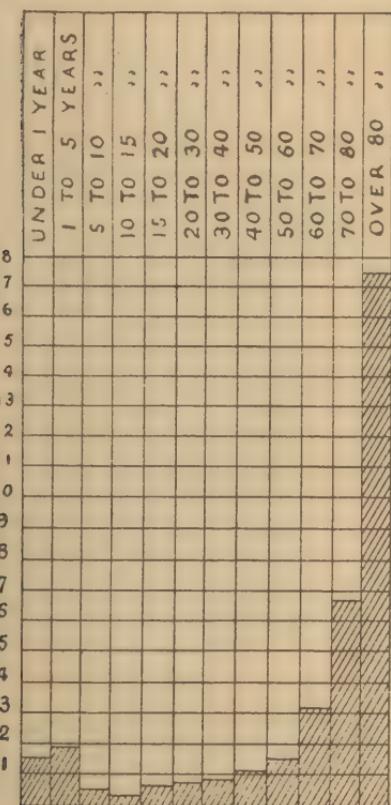
It is upon a knowledge of the disease as represented in Diagram No. 2 that mistakes are made in the acceptance of subjects for life insurance, under the supposition that having passed the age of forty, the chances of death from consumption are constantly lessening. Diagram No. 3 shows that the chances do lessen a little from forty to sixty, and after that constantly

increase to the end of life. This diagram shows exactly the liability to the disease, according to age, based upon the mortality of the disease in New Hampshire for the last three years.

Now let us for a moment compare the mortality rate from consumption to the mortality from all causes, to the living of the ages given.

Diagram No. 4 represents the percentages of deaths from all causes to the living of those ages. The exact percentages are as follows:

Under one, 1.42; one to five, 1.92; five to ten, 0.49; ten to fifteen, 0.33; fifteen to twenty, 0.61; twenty to thirty, 0.74; thirty to forty, 0.88; forty to

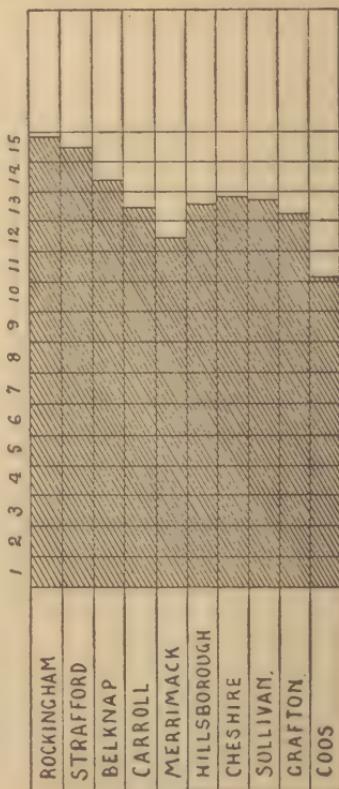


DIA'M 4

fifty, 1.04; fifty to sixty, 1.52; sixty to seventy, 3.12; seventy to eighty, 6.78; over eighty, 17.50.

Comparing these figures with those upon which Diagram No. 3 is constructed, we find that, were it not for consumption, the mortality rates between the ages of fifteen and forty would be very small; in fact, that period of life could be considered almost exempt, as it should be, from fatal diseases.

Diagram No. 5 shows the percentages of deaths from consumption for the years 1885, 1886, 1887, by counties, to the total mortality of those counties. The uneven distribution of the disease is to be accounted for only after the consideration of many factors affecting different localities. A low elevation and soil moisture doubtless have much to do with the high rates of Rockingham and Strafford counties, while the low rate of Coös is from a reverse topographical condition, with a larger area of forests and different atmospheric conditions. To account specifically for the variations exhibited in the diagram, the exemption from and prevalence of other diseases would have to be considered. For instance, in Hillsborough county the mortality rate from consumption in children under five years of age is doubtless greatly reduced by the heavy mortality rate from cholera infantum; in like manner, the mortality rate from consumption varies in other localities. The diagram is simply given to present the actual facts, rather than to enlarge, at this time, upon the causes that are responsible for the variations exhibited. A study of the death rate from consumption by seasons seems to show that there is no very marked variation from month to month. For the past three years the rate is as follows: January, 288; February, 235; March, 232; April, 234; May, 252; June, 231; July, 198; August, 177; September, 173; October, 208; November, 198; December, 182. The greatest number of deaths was in May and the fewest in September. There is a sameness in the mortality of consumption by months not characterized by any other disease.



DIAM 5

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DIA'M 6.

CONSUMPTION
1887

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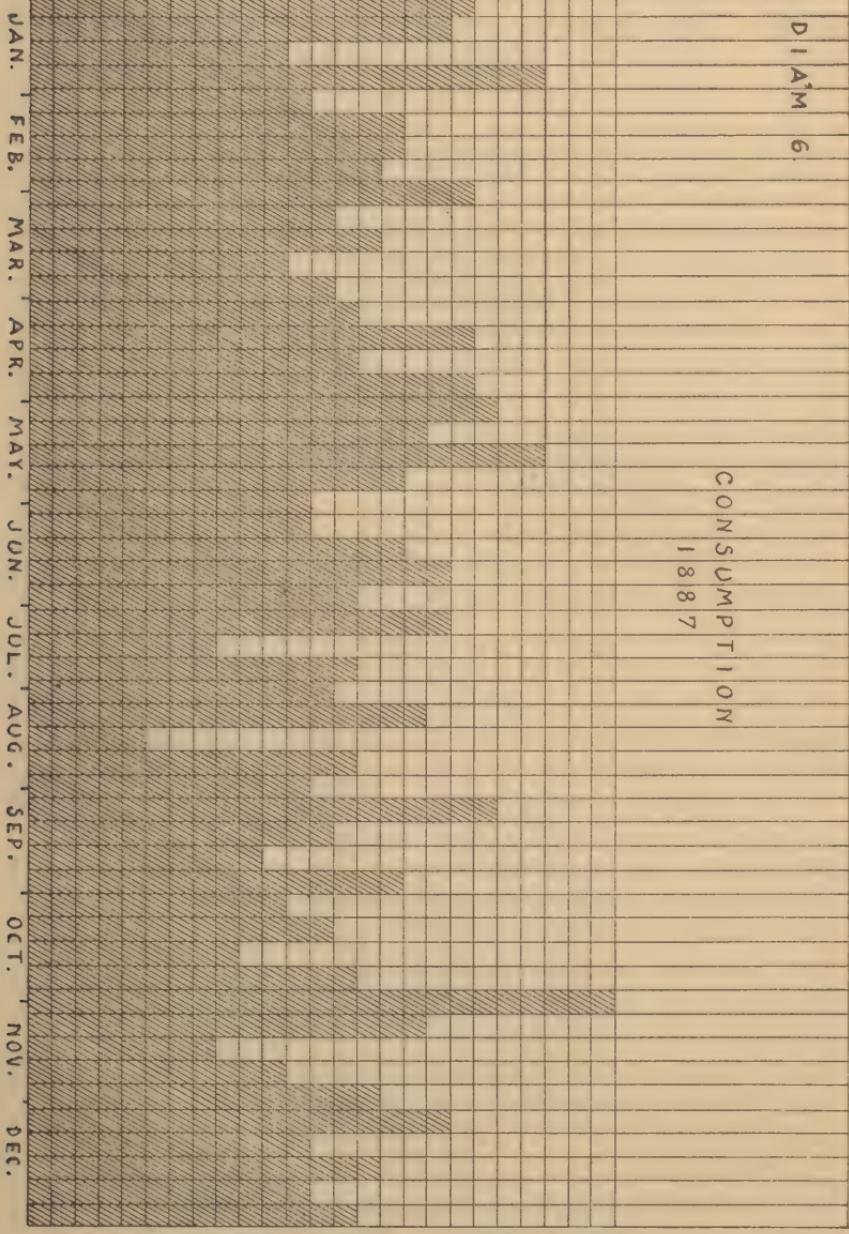


Diagram No. 6 shows the mortality from consumption during the past year (1887) by weeks, the greatest number of deaths occurring in the last week of October, and the least number in the second week of August.

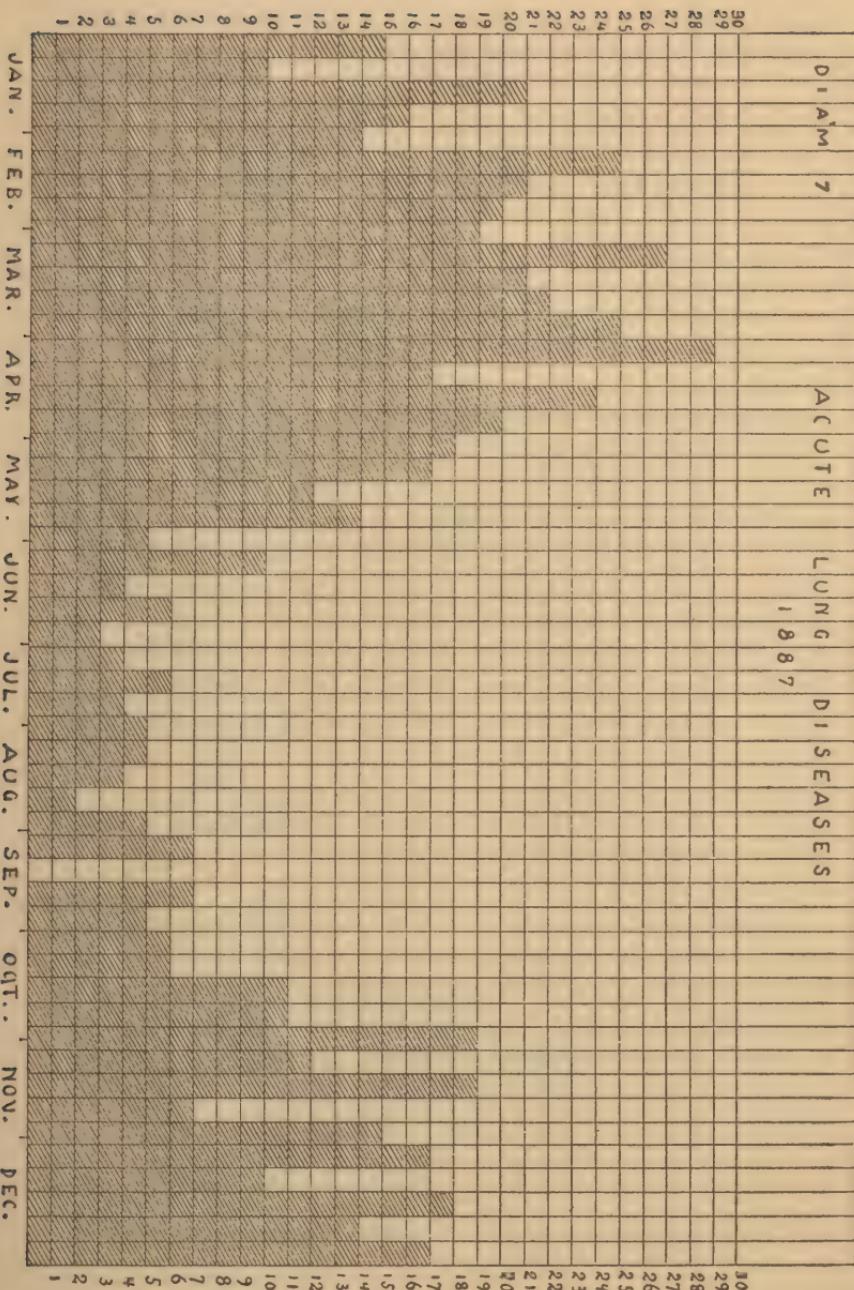
A glance at diagram No. 7, showing the deaths from acute lung diseases for the same period, shows vividly an effect of season which is not manifest in pulmonary consumption. This diagram includes pneumonia, acute bronchitis, asthma, and pleurisy.

The death rate by sex in consumption is largely among women. During the past three years the mortality by sex is as follows: Males, 1,051; females, 1,369. This is readily accounted for from the fact that women are subject, to a far greater extent than men, to the evils of non-ventilated living-rooms, as well as to the pernicious influences of other unsanitary surroundings.

Occupation, no doubt, has its influence in developing the disease; but our registration does not yet cover a sufficient number of years to present any facts of value upon this subject.

From a careful study of this disease in New Hampshire for the past six years, but more especially from the registration returns of the years 1885, 1886, and 1887, the following conclusions are arrived at:

1. The disease prevails in all parts of the state, but is apparently influenced by topographical conditions, being greater at a low elevation with a maximum soil moisture, than in the higher elevations with a less moist soil. The prevalence of other diseases also affects the death rate from consumption.
2. That the season has only a small influence upon the mortality from this disease. The popular idea that the fatality is greatest in the winter is shown to be erroneous, the greatest number of deaths occurring in May.
3. That the mortality is considerably greater in the female sex.
4. That no age is exempt from this disease, but that the least liability of its development exists between the ages of two and fifteen, and the greatest between twenty and thirty. Advanced age does not assure any immunity from the disease, as is gener-



ally supposed, but the smaller number of decedents is due to the fewer living persons of that advanced period of life.

5. The death rate from pulmonary consumption is relatively much the larger among the foreign born.

6. The average death rate from consumption for the years 1885, 1886, and 1887, is 12.86 per cent. of the total mortality of the state. In Massachusetts, for the ten years ending 1886, deaths from consumption averaged 16.10 per cent. of the total mortality; and in Rhode Island, for a period of twenty-five years ending 1884, 16.30 per cent. This shows a greater freedom from the disease in New Hampshire than in the two states mentioned.

In this very brief paper I have attempted to show only a few leading and important facts relating to pulmonary consumption. In military warfare, it is necessary to know the strength of the enemy in numbers, how he is fortified, from what direction he is likely to make an attack, or how garrisoned, in order to be assured of a reasonable chance of success in repelling his advance or of capturing his position. To rely upon the means at his command without this knowledge would be to invite defeat from the start. So in dealing with the fearful disease under consideration, it is necessary that the physician shall have a full knowledge of the foundation upon which is reared this appalling structure of death. Prescriptions of cod liver oil will check this advancing enemy with no greater rapidity than the rain will wash away the eternal rock of Gibraltar.

The mortality from pulmonary consumption has already been reduced during the present generation in New England; but the reduction has been secured through a better knowledge of how to avoid it, rather than from any system of medication. By a well directed application of the preventive knowledge which has been gained by a study of the history of the disease, its rate of fatality should be greatly lessened in the future.

